

Remarks/Arguments

A. Status of the Claims

Claims 48 and 62-64 are revised to correct inadvertent antecedent bases issues. Claim 51 is revised to further the prosecution. Non-limiting support for the revisions to claim 51 can be found in the specification at page 6, lines 16-21. Claims 53-56, and 58-59 are revised to conform with the revisions to claim 51.

Claims 39-82 are pending.

B. The Enablement Rejection Is Moot

Claim 51 is rejected under 35 U.S.C. § 112, first paragraphs, for enablement. It is alleged that the specification “while being enabling for the disclosed ‘derivatives’ of claim 51, does not reasonably provide enablement for all of the encompassed ‘derivatives.’” Action at 2.

Applicant agrees that the specification is enabled for the disclosed derivatives. Applicant, however, respectfully disagrees that the specification is not enabled for “all encompassed ‘derivatives.’” For instance, a person of ordinary skill in the art would understand what a derivative is in the context of the present specification and how such a derivative can be made and used without undue experimentation. However, in an effort to further the prosecution and secure prompt allowance, Applicant notes that the term “derivative” has been removed from claim 51 (and from claims 53-56 and 58-59 solely to conform with claim 51).

The enablement rejection is moot, and Applicant requests that it be withdrawn.

C. The Indefiniteness Rejection Is Moot

Claims 48 and 62-72 are rejected under 35 U.S.C. § 112, second paragraph, for antecedent basis issues. The indefiniteness rejection is moot in view the currently pending claims and should be withdrawn.

D. The Anticipation and Obviousness Rejections Are Overcome

Claims 39, 47-51, and 62-75 are rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent 4,686,250 to Qureshi. The same claims are rejected under 35 U.S.C. § 103(a) as being rendered obvious by Qureshi. In support of the anticipation and obviousness rejections, the Examiner appears to pick and choose from different portions of this reference, and from various lists of ingredients, to arrive at the claimed thermoset plastic material in claim 39.

Applicant disagrees with these rejections. The following subsections provide detailed arguments confirming that the rejected claims are not anticipated or rendered obvious by Qureshi.

1. The rejected claims are not anticipated by Qureshi

i. Anticipation standard

In order to establish anticipation of claim 39, every element of the claimed invention must be “identically shown in a single reference.” *See In re Bond*, 910 F.2d 831, 832 (Fed. Cir. 1990) (“For a prior art reference to anticipate in terms of 35 U.S.C. § 102, every element of the claimed invention must be identically shown in a single reference.”). Further, the elements of “must be arranged [in Qureshi] as in the claim under review.” *Id.* That is, it is improper to pick and choose various portions of Qureshi in an effort to reconstruct Applicant claimed invention. *In re Arkley*, 455 F.2d 586, 587 (CCPA 1972) (holding that an anticipating reference “must clearly and unequivocally disclose the claimed compound or direct those skilled in the art to the compound without any need for picking, choosing, and combining various disclosures not directly related to each other by the teachings of the cited reference.”); *see also Akzo N.V. v. U.S. International Trade Commission*, 808 F.2d 1471, 1480 (Fed. Cir. 1986) (stating that “...in effect

that the anticipatory reference must disclose in the prior art a thing substantially identical with the claimed invention.”).

ii. Applicant's claimed invention

Claim 39 currently recites “[a] thermoset plastic material comprising a three-dimensional matrix containing sulphur atoms and at least one antiplasticizing additive that does not react with said matrix.” In order to anticipate this claim, Qureshi must disclose an embodiment (without picking and choosing from different portions of Qureshi) that includes the following features:

- a thermoset material comprising a three-dimensional matrix;
- where the material includes a matrix containing sulphur atoms;
- where the material also includes at least one antiplasticizing additive; and
- where the antipasticizing additive is not able to react with the matrix.

Qureshi does not disclose such an embodiment. Rather, and as discussed in detail in the following section, a person of ordinary skill in the art would have to sift through an enormous number of ingredients and combinations and sub-combinations of such ingredients to reach Applicant’s claimed thermoset material. This is analogous to a “needle-in-the-haystack” approach. Courts have found no anticipation from these types of situations. *See Ex parte Garvey*, 41 U.S.P.Q. 583 (Pat & Trademark Office Bd. App. 1939).

iii. The scope of the Qureshi reference

Qureshi discloses a thermoset material resulting from polymerization of a polymerizable composition comprising an epoxy resin with a diamine. The diamine comprises X groups, which may be chosen from oxygen, sulphur, ketone and an optionally substituted alkylene group (col. 2, line 57, to col. 3, line 10). This reference does not prompt the person of ordinary skill in the art to specifically choose a sulphur containing diamine. It is worth noting that no sulphur containing diamine is comprised in the list of preferred diamines disclosed in col. 3, lines 11-66.

Qureshi also teaches that the polymerizable composition may comprise a coepoxide (col. 6, lines 29-30). Among the numerous coepoxides cited from col. 6, line 29, to col. 8, line 22, are polythiol polyglycidyl thioethers (col. 8, line 2). These compounds are not comprised in the list of preferred coepoxides cited in col. 8, lines 15-20. As a consequence, Qureshi does not contain any incentive to the specific choice of sulphur containing compounds among the extensive list of coepoxides. In addition, no sulphur containing coepoxide is used in the examples of Qureshi.

This reference also teaches that it is possible to use a catalyst and/or modifiers (0-35 %) so as to increase the modulus of the cured epoxy resin, and/or thermoplastic materials (col. 2, lines 35-39):

Optionally, the compositions of this invention may also contain a catalyst to enhance polymerization, and/or modifiers to increase the modulus of the cured epoxy resin, and/or thermoplastic materials.

Modifiers may be chosen from antiplasticizing agents, fortifiers, and other modifiers known to those skilled in the art (col. 8, l. 66, to col. 9, l. 10). Importantly, Qureshi does not prompt the person of ordinary skill in the art to specifically choose antiplasticizers among the cited modifiers. Antiplasticizers are not even cited among the preferred modifiers in col. 9, lines 10-31. Rather, the preferred modifiers are fortifiers. *Id.* Moreover, it is important to recall that presence of a modifier is only optional in Qureshi. This is confirmed by the fact that no modifier, and consequently no antiplasticizing additive, is used in its examples.

Further, claim 39 requires the antiplasticizer to be unreactive toward the matrix. Qureshi simply fails to prompt those skilled in the art to specifically choose such antiplasticizers that are unreactive toward the matrix among the list of cited antiplasticizers. If anything, Qureshi indifferently teaches the use of antiplasticizers unreactive toward a matrix, such as dibutyl phthalate, and antiplasticizers highly reactive toward a matrix, such as hydroxy diphenyl.

iv. *The differences between Applicant's Claim 39 and Qureshi*

When comparing claim 39 with the entire scope and content of Qureshi, it becomes clear that Qureshi fails to disclose or suggest a thermoset plastic material having a three-dimensional matrix that combines a sulphur atom (*e.g.*, sulphur containing diamine or a sulphur containing coepoxide) with a modifier, and much less the combination of such a diamine with an antiplasticizer, and much less its combination with an antiplasticizer that is unreactive toward the matrix. In fact, the only way to arrive at Applicant's invention is to pick and chose from various portions of Qureshi, to sift through hundreds of different ingredients that are contained in a laundry list type format, and to combine these ingredients in a manner claimed by Applicant. This is essentially a needle-in the-haystack type of approach. Such picking and choosing is improper in the context of an anticipation rejection. *In re Arkley*, 455 F.2d at 587. In fact, courts have found no anticipation from disclosures such as Qureshi. *See Ex parte Garvey*, 41 U.S.P.Q. 583 (Pat & Trademark Office Bd. App. 1939).

In *Ex parte Garvey* the applicant's claims were directed to a vulcanized product and corresponding methods of making the same. *Id.* at 583. The examiner rejected the invention for anticipation in view of the Dykstra Patent. Dykstra disclosed a compound that had several possible variations that could be made to it. *Id.* at 584. In finding no anticipation, the Board reasoned that “[w]hile the invention here claimed in its broader aspects is doubtless embraced within the speculative teachings of the references, we doubt if references...can be fairly applied in rejecting claims such as those on appeal where anticipation can be found only by making one of a very great number of possible permutations which are covered by the reference disclosures.” *Id.* The Court further stated:

The likelihood of producing a composition such as here claimed from a disclosure such as shown by the Dykstra patent would be about the same as the likelihood of discovering the combination of a safe from a mere inspection of the dials thereof.

Id.; see also *In re Luvisi*, 342 F.2d 102 (C.C.P.A. 1965); *Ex parte Frey*, 90 U.S.P.Q 383 (Pat & Trademark Office Bd. App. 1946).

For at least the above reasons, the anticipation rejection of claims 39, 47-51, and 62-75 over Qureshi should be withdrawn.

2. The rejected claims are not rendered obvious by Qureshi

Claims 39, 47-51, and 62-75 are not rendered obvious by Qureshi for at least the same reasons discussed above. That is to say, in order to obtain Applicant's claimed "thermoset material," a person of ordinary skill in the art would have to sift through hundreds of thousands of different combinations of ingredients to obtain the material of claim 39. This is analogous to a "needle-in-the-haystack" approach. Similar to anticipation, court's have consistently found non-obviousness based on such an approach. See, e.g., *In re Luvisi and Nohejl*, 342 F.2d 102 (in finding non-obviousness, the Court noted "Ryker *et al.* contains, for all practical purposes, a 'needle-in-the-haystack' type of disclosure with respect to borax").

Applicant also notes that the selection of technical features in claim 39 is not arbitrary. The claimed thermoset material has been claimed in such a manner so as to solve the technical problem of obtaining a thermoset material having a high refractive index and an improved impact resistance. This improvement should concurrently not decrease the material intrinsic properties, such as its solvent resistance (see page 1 of Applicant's specification). This technical problem is solved through the combination of a sulphur containing thermoset matrix with an antiplasticizing additive that is not reactive toward said matrix.

In fact, this particular combination of features exhibits an especially remarkable effect that a person skilled in the art could not have assumed, taking into account the disclosure of Qureshi which is discussed above. Applicant's specification clearly demonstrates that incorporation of an antiplasticizing additive according to claim 39 improves the impact resistance of a sulphur containing thermoset material (specification at page 38).

Further, Qureshi does not disclose or even suggest that it is necessary to combine the technical features of claim 39 in the hope of improving the impact resistance. Rather, this reference is only concerned with obtaining a composition having low viscosity and moisture uptake, and high glass transition temperature and tensile properties, for use in the field of wet winding. This document is simple silent about optical properties of the materials. On the contrary, the choice of sulphur containing materials is driven by the wish of obtaining a high refractive index material. Therefore, nothing prompted those of ordinary skill to combine the claimed thermoset matrix with an antiplasticizer, specifically chosen from the claimed antiplasticizers, in the hope of solving the technical problem solved by the current invention.

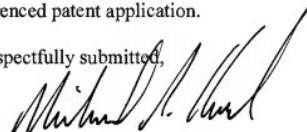
For at least these reasons, Applicant respectfully requests that the rejection of claims 39, 47-51, and 62-75 under 35 U.S.C. § 103(a) be withdrawn.

E. Conclusion

Applicant believes that the present document is a full and complete response to the Office Action mailed May 29, 2007. The present case is in condition for allowance and such favorable action is requested.

The Examiner is invited to contact the undersigned Attorney at (512) 536-3020 with any questions, comments or suggestions relating to the referenced patent application.

Respectfully submitted,



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Date: August 29, 2007